TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

April 4, 2007

TO: Internal File

THRU: Pamela Grubaugh-Littig, Permit Supervisor
Karl R. Houskeeper, Environmental Scientist/Engineering, Team Lead

FROM: Steve K. Christensen, Environmental Scientist/Hydrology

RE: Revised Appendix X and Proposed Gob Gas Vent Holes GVH-10 thru GVH-17
Andalex Resources, Inc., Centennial Mine, C/007/0019, Task ID #2766

SUMMARY:

On March 16, 2007, Andalex Resources, Inc. (the Permittee) submitted a Mining and Reclamation Plan (MRP) amendment to the Utah Division of Oil, Gas and Mining (the Division). The submittal outlines the proposed construction of potentially 15 gob gas vent holes (eight primary holes and seven alternate holes) at the Centennial Mine facility. The eight primary holes (GVH-10, GVH-11, GVH-12, GVH-13, GVH-14, GVH-15, GVH-16 and GVH-17) will be bonded and drilled in preparation for the next longwall panel to be developed (Panel #10). The seven alternate holes (GVH-10A, GVH-11A, GVH-12A, GVH-13A, GVH-14A, GVH-15A and GVH-16A) will be drilled in the event of an emergency; for example if one of the primary holes should fail, or if dangerous levels of methane continue to build up underground following the completion of the primary holes. The Permittee has indicated that in order for the mining operations to continue, and still maintain current production levels, additional ventilation is necessary as new long wall panels are developed.

The submittal contains as-built drawings for a previously approved gob gas vent hole that has since been constructed at the site: GVH-8A.

Per the State of Utah R-645 Coal Mining Rules, this Technical Memo addresses the hydrologic aspects of the Revised Appendix X and the proposed construction of additional gob gas vent holes at the Centennial Mine. For tracking purposes, the Division has assigned this task ID #2766.

Findings:

Hydrologic information provided in the Revised Appendix X does not meet the hydrology requirements of the State of Utah R-645 Coal Mining Rules and should be not be approved at this time.

The following deficiencies relative to R645-301-731, the road descriptions contained in Chapter 5 and their depictions on Figure 1-1 of the application should be addressed prior to Division Approval:

GVH-5: An existing road is depicted on the clean copy map version of Figure 1-1 in the vicinity of GVH-5. However, it does appear that a small access road was constructed to site GVH-5 (approximately 300-400'). The road description for GVH-5 on page 5-6 does not discuss this small access road. The Permittee should indicate in the description on page 5-6 what the reclamation plans are for this newly constructed access road. If the road is to be retained at the conclusion of mining operations, the Permittee should provide documentation or a reference to where the landowners have signed off on the post-mining land use that includes the retention of the access road. The Permittee should modify and/or clarify the description on Page 5-6.

GVH-5A: Page 5-6 indicates that a road was constructed for GVH-5A from GVH-5. There is no indication as to whether the newly constructed road will be reclaimed or not. The Permittee should indicate in the description on page 5-6 what the reclamation plans are for this newly constructed access road. If the road is to be retained at the conclusion of mining operations, the Permittee should provide documentation or a reference to where the landowners have signed off on the post-mining land use that includes the retention of the access road. The Permittee should modify and/or clarify the description on Page 5-6.

GVH-5B: Per a discussion with Dave Shaver of Andalex Resources, Inc., it was determined that GVH-5B was not constructed. The Permittee should modify and/or clarify the description on Page 5-6 to reflect that the vent hole was not constructed.

GVH-6: The access road description on page 5-7 states, "This is a constructed access road running from 'Road GVH-5' to the GVH-6 site". Figure 1-1 depicts a newly constructed road arcing southwest to the site off of a jeep trail. The road is described as being 4,300' long on page 5-7; however, the arcing access road depicted on the map is considerably shorter according to the scale (1"=1,000 ft.). If "Road GVH-5" has been designated a name for one of the jeep trails shown on Figure 1-1, it should be labeled. The Permittee should modify and/or clarify Figure 1-1 and the description on Page 5-7.

GVH-8: A road was constructed to access GVH-8. The Permittee should indicate in the description on page 5-7 what the reclamation plans are for this newly constructed access road. If the road is to be retained at the conclusion of mining operations, the Permittee should provide documentation or a reference to where the landowners have signed off on the post-mining land use that includes the retention of the access road.

***GVH-10A*:** The access to the site will be a newly constructed road per the description on page 5-8 and is not "scheduled to be removed". If the road is to be retained at the conclusion of mining operations, the Permittee should provide documentation or a reference to where the landowners have signed off on the post-mining land use that includes the retention of the access road.

***GVH-15A*:** Figure 1-1 depicts the site as being located on an existing road. However, the description on page 5-9 indicates that the road will be constructed and will be approximately 900' long. The Permittee also states that the road is scheduled to be removed and reclaimed. The Permittee should modify and/or clarify Figure 1-1 and the description on Page 5-9.

***GVH-17*:** Page 5-9 indicates that the site will be accessed via the existing OSO pipeline corridor. A pipeline corridor is not depicted on Figure 1-1 in this area. In addition, a newly constructed spur road is depicted on Figure 1-1, yet not discussed in the description. The Permittee should modify and/or clarify Figure 1-1 and the description on Page 5-9.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

GENERAL

Regulatory Reference: 30 CFR 783.12; R645-301-411, -301-521, -301-721.

Analysis:

The application meets the hydrology requirements for General information as provided in R645-301-721. A description of the existing, pre-mining hydrologic resources within the proposed gob vent hole project area is provided in Section 721 of the revised Appendix X and further discussed in Appendix L of the approved MRP.

Findings:

The information provided meets the hydrology requirements for General information as provided in the R645-State of Utah Coal Mining Rules.

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

Analysis:

The application meets the hydrology requirements for Geologic Resources as provided in R645-301-724. Geologic information related to the gob gas vent hole sites and adjacent areas is presented in Chapter 6 of Appendix X. Additional information is in the current MRP. Plate 21 of the current MRP shows the geology associated with the entire permit area, including the proposed Gob Gas Vent Holes locations. The borehole sites will be built on Flagstaff Formation. No test boring or drill cores are planned for the gob gas vent holes. Additional geologic data will not be collected.

Findings:

The information provided meets the hydrology requirements for Geologic Resource Information as provided in the R645-State of Utah Coal Mining Rules.

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

Analysis:

Probable Hydrologic Consequences Determination

The application meets the requirements for Probable Hydrologic Consequences (PHC) Determination as provided in R645-301-728.

Pages 7-3 and 7-4 of Appendix X discuss the PHC for the proposed gob vent hole construction. Mitigation measures are discussed generally in Appendix X, Section 728 and in detail in Section 730 of the MRP.

Hydrocarbon products will not be stored at the well sites; however, fuels, greases, and other oils may leak from equipment during drilling operations. Absorbent materials will be used for the collection of leaked fuels, greases, and other oils. The saturated absorbent materials will be disposed of at an appropriate landfill facility (Appendix X, Sections 728.100 and 728.300).

Encountered ground water could be impacted during the advancement of the vent hole shaft. Drilling mud will be used to seal ground water zones. Once drilling is completed, the casing will be grouted in the well hole. This will seal the aquifers to prevent any groundwater from migrating down the outside of the casing into the mine. In order for the gob gas vent holes to function as designed, water needs to be prevented from entering the shaft (Appendix X, Section 728.300).

No acid- or toxic-forming materials have been identified in the soils or strata of the Centennial Project (MRP Chapter 6) and no acid- or toxic-forming materials will originate at the gob gas vent hole sites (Appendix X, Section 728.300). Additional information on acid- or toxic-forming materials is located in Appendix E of the MRP.

Findings:

The information provided meets the hydrology requirements for Probable Hydrologic Consequences as provided in the R645-State of Utah Coal Mining Rules.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Existing Surface Configuration Maps

The application meets the hydrology requirements for Existing Surface Configuration Maps as provided in R645-301-722, -731. Figure 1-1, Centennial Project GVH Location Map, depicts the topography as well as other land surface features located in the proposed construction areas.

Findings:

The information provided meets the hydrologic requirements for Maps, Plans and Cross Sections of Resource Information as provided in the R645-State Utah Coal Mining Rules.

OPERATION PLAN

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Disposal Of Noncoal Mine Wastes

The application meets the hydrology requirements for Disposal of Noncoal Mine Wastes as provided in R645-301-747. On page 7-9 of the application, the Permittee states, "All non-coal mine waste will be disposed of at an approved landfill". In addition, the Permittee commits to utilizing absorbent materials for the collection of leaked fuels, greases and other oils. The saturated absorbent materials will be disposed of at an appropriate landfill facility.

Coal Mine Waste.

The application meets the hydrology requirements for Coal Mine Waste as provided in R645-301-746. Page 7-9 of the application states that no coalmine waste will be used at the vent hole sites. The cuttings that are produced from advancing the vent hole shaft will be mixed with the sub-soils excavated from the mud pits during reclamation. The mixture will be placed in the pits and covered with four feet of subsoil and then with topsoil at the same thickness as the rest of the site.

Refuse Piles

The application meets the hydrology requirements for Refuse Piles as provided in R645-301-746.200. According to the submittal, no refuse piles will be generated at the gob gas vent hole sites.

Impounding Structures

The application meets the hydrology requirements for Impounding Structures as provided in R645-301-733.200. According to page 7-7 of the application, no permanent impoundments will be utilized at the gob gas vent hole sites.

Excess Spoil

The application meets the hydrology requirements for Excess Spoil as provided in R645-301-754. Page 7-10 of the application states, "There will be no excess spoil or coal mine waste generated at the well sites".

Findings:

The information provided meets the hydrologic requirements for Spoil and Waste Material as provided in the R645-State Utah Coal Mining Rules.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

General

The application meets the requirements for General information as provided in R645-301-731. The application includes general well site plans that incorporate design criteria for the control of drainage (Appendix X, Section 741). Page 7-5 of the application states that the effect on groundwater at the well sites is expected to be minimal, and ground water encountered during drilling will be sealed off. To protect the hydrologic balance, the Permittee commits to handle earth materials and runoff during construction, maintenance, and reclamation operations in a manner that prevents, to the extent possible, additional contributions of suspended solids to stream flow outside the permit area, and otherwise prevent water pollution. Page 7-5 also discusses the layout/construction of the drill sites. The sites will be graded to ensure that storm runoff will flow towards the berms surrounding the entire drilling pad area. The berms will direct the runoff to the lowest point(s) within the pad area where a silt fence and/or straw bale dike(s) will treat the runoff prior to leaving the site. A berm will also be placed at the top of the drilling pad cut slopes in order to divert runoff around the drilling pad.

Once drilling is completed, the pad size will be reduced prior to exhausting operations. The drilling pad will then be graded to cause storm runoff to flow towards a silt fence and/or straw bale dike. A berm will be placed at the top of the fill slope to direct any runoff from the operational pad to the silt fence and/or straw bale dike. The Permittee commits to periodically inspect the silt fences and straw bale dikes. The collected sediment will then be piled on the pad and used for fill during final reclamation of the site. During the drilling phase, a berm and silt fence will be installed at the toe of the fill slope to treat any runoff from the drilling pad. During the operational phase, there will be sediment control (silt fence) at the toe of the slope.

Groundwater Monitoring

The application meets the hydrology requirements for Groundwater Monitoring as provided in R645-301-731.211. No additional groundwater monitoring is necessary in association with the additional gob gas vent holes.

Surface Water Monitoring

The application meets the hydrology requirements for Surface Water Monitoring as provided in R645-301-731.220. No additional surface water monitoring is necessary in association with the additional gob gas vent holes.

Acid- and Toxic-Forming Materials and Underground Development Waste

The application meets the hydrology requirements for Acid- and Toxic-Forming Materials and Underground Development Waste as provided in R645-301-731.300. No acid- or toxic-forming materials are anticipated at the proposed vent hole sites. According to page 7-5 of the application, no acid- or toxic-forming materials have been identified in the soils or strata of the Centennial Project. Additional information regarding the potential acid and toxic forming materials is located in Appendix E of the approved MRP.

Discharges Into An Underground Mine

The application meets the hydrology requirements for Discharges Into An Underground Mine as provided in R645-301-731.510. On page 7-6 of the application, the Permittee states that there will be "no discharge to underground workings".

Diversions: General

The application meets the hydrology requirements for Diversions: General as provided in R645-301-732.300. On page 7-8, the Permittee states,"No diversion ditches will be constructed

as part of the drilling or operational phases". The small access roads to be constructed for access to the drilling sites will not require diversion ditches. Where needed, roads accessing the drill sites will have a water bar constructed at the base of the road to divert water off the road prior to reaching the drill pad.

Sediment Control Measures

The application meets the hydrology requirements for Sediment Control Measures as provided in R645-301-732. The gob gas vent hole sites have been designed to minimize erosion to the extent possible, and sediment control measures formulated to prevent additional contributions of sediment to stream flow or to runoff outside the well sites, minimize erosion to the extent possible, and otherwise prevent water pollution. The Permittee commits to utilizing berms, silt fences and/or straw bale dikes. Runoff protection and sediment control for all of the gob vent holes sites is primarily through total containment by berms; however, silt fences are used as needed to provide additional protection.

Hydrologic calculations of runoff volume and peak flows from each of the previously installed gob vent holes as well as the proposed gob vent holes are contained in Attachment 7-1. The calculations were performed utilizing a 10-year/24-hour precipitation event of 1.82". Section R645-301-512.240 in the MRP discusses further criteria used in the hydrologic calculations.

Sediment yields in the well permit area will be minimized by disturbing the smallest practicable area during the construction of the well site and contemporaneously reclaiming areas suitable for such reclamation. On page 7-6 the Permittee states, "The drilling sites will not have sedimentation ponds". Sediment control methods will include primarily silt fences, berms, and straw bales to reduce runoff and trap sediment. Sediment control measures will be located, maintained, constructed and reclaimed according to plans and designs presented in Appendix X, Sections 732, 742, and 760.

Siltation structures will be installed before the topsoil is removed from the gob gas vent hole sites. Construction activities will not occur during major precipitation events (Appendix X, Section 742). Sites will be graded to ensure that storm runoff flows towards berms surrounding the drill pad. Berms and silt fences will direct runoff to the low points of the pad, where runoff will be treated by silt fences or straw bales. A berm at the top of cut slopes will divert runoff around the drilling pad. Berms at the top of fill slopes will direct runoff from the pad to silt fences or straw bales, and berms and silt fences will be installed at the toe of fill slopes. After drilling, the pad will be reduced in size and re-graded to direct storm runoff towards silt fences or straw bales. Silt fences and straw bales will be periodically inspected, and accumulated sediment will be removed as needed to maintain functionality and piled on the pad to be used for fill during final reclamation of the well site (Appendix X, Section 731.100).

Chapter 5 of the revised Appendix X contains pad design figures depicting the typical sedimentation structures and pad cross-sections that will be utilized during the installation and operation of the gob vent holes (Figures 5-1, 5-2, and 5-3). In addition, as-constructed drawings have been submitted for gob vent holes GVH-1, GVH-3, GVH-4, GVH-5, GVH-5A, GVH-6, GVH-7, GVH-8, GVH-8A and GVH-9. An as-built drawing is also provided for GVH-7A, as this is a re-drill of GVH-7, which became inoperable.

Siltation Structures: General

The application meets the hydrology requirements for Siltation Structures: General as provided in R645-301-732.100. Siltation structures will be located, maintained, constructed, and reclaimed according to plans and designs presented in Sections 732, 742, 752.100 and 763 of Appendix X. See discussion in sediment control measures section above for overall discussion as to storm runoff control at the sites.

Siltation Structures: Sedimentation Ponds

The application meets the hydrology requirements for Siltation Structures: Sediment Ponds as provided in R645-301-732.210. On page 7-6 the Permittee states, "The drilling sites will not have sedimentation ponds".

Siltation Structures: Exemptions

The Permittee has not requested any exemptions from the requirements of this section of the Coal Mining Rules.

Discharge Structures

The application meets the hydrology requirements for Discharge Structures as provided in R645-301-734. On page 7-7 of the application, the Permittee describes how storm runoff generated on the site and adjacent areas will be controlled. A berm will surround the entire drill pad at each well site during the drilling phase. The berm will divert undisturbed runoff around the drilling pad and direct runoff from the pad to a silt fence/straw bale dike at the lowest point within the well pads disturbed area. A silt fence and/or straw bale dike will be the discharge structure for each of the well sites during the operational phase.

Impoundments

The application meets the hydrology requirements for Impoundments as provided in R645-301-734. According to Page 7-7 of the application "No permanent impoundments will exist at the well sites".

Road Drainage

The application meets the hydrology requirements for Road Drainage as provided in R645-301-734. On page 5-2 of the application, the Permittee states that short sections of road may be required to access certain well sites. In that event, topsoil will be stripped from the road alignment and stored with the stripped topsoil from the pad area prior to grading the access road. The Permittee has committed to utilizing existing roads when possible.

The application states that no diversion ditches will be constructed as part of the drilling or operational phases, including along the roads leading to the well sites. Where needed on roads accessing the drill sites, water bars will be constructed to divert water away from the drill pad. The existing private access road up Deadman Canyon will be equipped with silt fences to control sediment. In addition to the water bars, 18-24 inch culverts will be installed on this road and left in place at the owner's request.

Figure 5-5 depicts a typical road cross section. The width of the road is shown as approximately 16 feet. The figure shows the Permittee's plan to remove the existing road surface topsoil (prior to construction) and stockpiling it.

Page 5-6 provides a description of each of the roads used to access the gob vent hole sites.

Water Rights and Replacement

The application meets the hydrology requirements for Impoundments as provided in R645-301-731.530. The PHC determinations by Mayo and Associates and by Peterson Hydrologic in Appendix L of the MRP acknowledge the requirement to replace State-appropriated water supplies that have been diminished, contaminated, or interrupted. Section R645-301-535 contains a commitment that should it be shown that mining related activities have adversely affected state-appropriated water supplies, the Permittee will attempt to repair or restore the affected water supply; specific repair and restoration methods are outlined. If the supply cannot be restored, the loss may be mitigated by replacement of equivalent water rights from those held by the Permittee.

Findings:

The information provided meets the hydrologic requirements for Hydrologic Information as provided in the R645-State Utah Coal Mining Rules.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Mining Facilities Maps

The application does not meet the hydrology requirements for Mining Facilities Maps as provided in R645-301-731. The proposed locations for the vent holes are shown on Figure 1-1 of Appendix X. Chapter 5 of the revised Appendix X contains pad design figures depicting the typical sedimentation structures and pad cross-sections that will be utilized during the installation of the gob vent holes (Figures 5-1, 5-2, and 5-3). In addition, as-constructed drawings have been submitted for gob vent holes GVH-1, GVH-3, GVH-4, GVH-5, GVH-5A, GVH-6, GVH-7/7A, GVH-8, GVH-8A and GVH-9.

Several discrepancies were identified concerning the roads utilized in accessing the gob vent hole sites. Page 5-6 of Appendix X provides a description of the roads used at each of the gob vent hole sites. The following deficiencies should be addressed:

GVH-5: An existing road is depicted on the clean copy map version of Figure 1-1 in the vicinity of GVH-5. However, it does appear that a small access road was constructed to site GVH-5 (approximately 300-400'). The road description for GVH-5 on page 5-6 does not discuss this small access road. The Permittee should indicate in the description on page 5-6 what the reclamation plans are for this newly constructed access road. If the road is to be retained at the conclusion of mining operations, the Permittee should provide documentation or a reference to where the landowners have signed off on the post-mining land use that includes the retention of the access road. The Permittee should modify and/or clarify the description on Page 5-6.

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have signed off on the post-mining land use that includes the retention of the access road. The Permittee should modify and/or clarify the description on Page 5-6.

GVH-5B: Per a discussion with Dave Shaver of Andalex Resources, Inc., it was determined that GVH-5B was not constructed. The Permittee should modify and/or clarify the description on Page 5-6 to reflect that the vent hole was not constructed.

GVH-6: The access road description on page 5-7 states, "This is a constructed access road running from 'Road GVH-5' to the GVH-6 site". Figure 1-1 depicts a newly constructed road arcing southwest to the site off of a jeep trail. The road is described as being 4,300' long on page 5-7; however, the arcing access road depicted on the map is considerably shorter according to the scale (1"=1,000 ft.). If "Road GVH-5" has been designated a name for one of the jeep trails shown on Figure 1-1, it should be labeled. The Permittee should modify and/or clarify Figure 1-1 and the description on Page 5-7.

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***GVH-15A*:** Figure 1-1 depicts the site as being located on an existing road. However, the description on page 5-9 indicates that the road will be constructed and will be approximately 900' long. The Permittee also states that the road is scheduled to be removed and reclaimed. The Permittee should modify and/or clarify Figure 1-1 and the description on Page 5-9.

***GVH-17*:** Page 5-9 indicates that the site will be accessed via the existing OSO pipeline corridor. A pipeline corridor is not depicted on Figure 1-1 in this area. In addition, a newly constructed spur road is depicted on Figure 1-1, yet not discussed in the description. The Permittee should modify and/or clarify Figure 1-1 and the description on Page 5-9.

Findings:

The information provided does not meet the hydrologic requirements for Maps, Plans and Cross Sections of Mining Operations as provided in the R645-State of Utah Coal Mining Rules.

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation Plan

The application meets the hydrology requirements for Impoundments as provided in R645-301-731.

A general reclamation plan for the gob gas vent hole sites is presented in Sections 540 and 550 of Appendix X. Sealing of the boreholes is described in Appendix X, Section 542.700. The natural drainage patterns will be restored (Appendix X, Section 762). All siltation structures will be maintained until removed in accordance with the approved reclamation plan (Appendix X, Section 763.100). When a siltation structure is removed, the land on which the siltation structure was located will be regraded and revegetated in accordance with the reclamation plan in Section 540 (Appendix X, Section 763.200).

The Permittee commits to take care to guard against erosion during and after application of topsoil and to employ the necessary measures to ensure the stability on graded slopes. Care will be exercised to ensure the stability of topsoil on graded slopes to guard against erosion during and after topsoil application. Post reclamation (contemporaneous and final) erosion control measures will be surface roughing, mulching and seeding. Outslopes along all the access roads will be seeded with a fast growing type of seed. Erosion control measures will include silt fences, berms, seeding, straw bales, soil roughening, and mulching of the soils (Appendix X, Section 231.300).

No structures will remain at the gob gas vent hole sites. These sites will be returned to approximate original contour, however, gouging the surface will create depressions and mounds to store and impede the movement of water. As vegetation becomes established on the reclaimed surface, erosion potential will be further minimized (Appendix X, Section 553.100).

Permanent Casing and Sealing of Wells

All openings will be sealed in accordance with Federal and State Regulations. The casings will be plugged at the bottom to hold concrete and a lean concrete mixture will be poured into the casing until the concrete is within five feet of the surface. At that time, the casing will be cut off at ground level and the rest of the casing will be filled with lean concrete. The concrete will be allowed to harden before final reclamation is completed (Appendix X, Section 542.700).

Restoring the Natural Drainage Patterns

The natural drainage patterns will be restored after degasification is completed (Appendix X, Section 762.100).

Removal of Siltation Structures

When a siltation structure is removed, the land on which the siltation structure was located will be regraded and revegetated in accordance with the reclamation plan presented in Section 540 (Appendix X, Section 763.200).

Roads

The roads that existed prior to the drilling program will be retained after reclamation. The access roads established during the drilling program will be reclaimed after gob gas extraction has been completed.

Findings:

The information provided meets the hydrologic requirements for Hydrologic Reclamation Plan as provided in the R645-State of Utah Coal Mining Rules.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

Analysis:

The application meets the hydrology requirements for Cumulative Hydrologic Impact Assessment as provided in R645-301-729.200. The Division has evaluated the gob gas vent hole amendment and determined that construction and operation of these holes does not require revision of the CHIA determination.

Findings:

The information provided meets the hydrologic requirements for Cumulative Hydrologic Impact Assessment as provided in the R645-State Utah Coal Mining Rules.

RECOMMENDATIONS:

Hydrologic information provided in this amendment does not meet the requirements of the R645-State of Utah Coal Mining Rules. The proposed amendment should be approved at this time.

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